CLAIMS

1. An optical film, comprising:

a complex type scattering-dichroic absorbing polarizer including a film that has a structure having a minute domain dispersed in a matrix formed of an optically-transparent water-soluble resin including an iodine based light absorbing material; and

a birefringent film including a transparent film formed of a solid polymer that having the characteristic $nx>ny>nz$, where a direction in which a refractive index in a film plane gives maximum is defined as X-axis, a direction perpendicular to X-axis as Y-axis, a thickness direction of the film as Z-axis, and refractive indices in each axial direction are defined as nx_1, ny_1, and nz_1, respectively.

2. The optical film according to Claim 1, wherein the minute domain of the complex type absorbing polarizer is formed of an oriented birefringent material.

3. The optical film according to Claim 2, wherein the birefringent material shows liquid crystalline at least in orientation processing step.

4. The optical film according to Claim 2, wherein the minute domain of the complex type absorbing polarizer has 0.02 or more of birefringence.

5. The optical film according to Claim 2, wherein in a

refractive index difference between the birefringent material forming the minute domain and the optically-transparent water-soluble resin of the complex type absorbing polarizer in each optical axis direction,

5   a refractive index difference (Δn^1) in direction of axis showing a maximum is 0.03 or more, and

a refractive index difference (Δn^2) between the Δn^1 direction and a direction of axes of two directions perpendicular to the Δn^1 direction is 50% or less of the Δn^1.

10   6.   The optical film according to Claim 5, wherein an absorption axis of the iodine based light absorbing material of the complex type absorbing polarizer is oriented in the Δn^1 direction.

7.   The optical film according to Claim 1, wherein the film

15   used as the complex type absorbing polarizer is manufactured by stretching.

8.   The optical film according to Claim 5, wherein the minute domain of the complex type absorbing polarizer has a length of 0.05 to 500 μm in the Δn^2 direction.

20   9.   The optical film according to Claim 1, wherein the birefringent film is a transparent film formed of solidifying a developed layer of a liquefied solid polymer and the birefringent film is imparted the characteristic nx>ny>nz to have the transparent film, which is characterized in that nα is from 0.005 to

25   0.3, align a molecule in the plane of the transparent film, where

$(nx+ny)/2-nz=n\alpha$, a direction in which a refractive index in a film

plane gives maximum is defined as X-axis, a direction

perpendicular to X-axis as Y-axis, a thickness direction of the film

as Z-axis, and refractive indices in each axial direction are defined

5   as nx_1, ny_1, and nz_1, respectively.

          10.   The optical film according to Claim 1, wherein the solid

polymer that forms the birefringent film is at least one selected

from polyamide, polyimide, polyester, polyetherketone, polyamide-

imide, and polyesterimide.

10   11.   The optical film according to Claim 1, wherein the

birefringent film satisfies the relationship $Re \geq 10$ nm, where

$Re=(nx-ny)d$, and d is thickness.

          12.   The optical film according to Claim 9, wherein the

birefringent film is produced by a process comprising the steps of

15   dissolving the solid polymer in a solvent to liquefy it, developing

the liquefied polymer on a supporting substrate, drying it to form a

transparent film comprising the solidified product and having the

characteristic $nx \approx ny$, and subjecting the transparent film to one or

both of an extending process and a shrinking process to align a

20   molecule in the plane of the transparent film.

          13.   The optical film according to Claim 1, wherein the

complex type absorbing polarizer and the birefringent film are

laminated and fixed through an acrylic transparent pressure-

sensitive adhesive.

25   14.   The optical film according to Claim 1, wherein a

transmittance to a linearly polarized light in a transmission direction is 80% or more,

a haze value is 5% or less , and

a haze value to a linearly polarized light in an absorption

5 direction is 30% or more, with regard to the complex type absorbing polarizer.

15. An optical film comprising the optical film according to Claim 1 and at least one of another optical film.

16. An image display comprising the optical film

10 according to Claim 1 or Claim 15.

17. A transmissive liquid crystal display, comprising:

a liquid crystal cell comprising a pair of substrates and a liquid crystal layer sandwiched between the substrates; and

a pair of polarizing plates placed on both sides of the liquid

15 crystal cell, wherein

at least one of the polarizing plates is the optical film according to Claim 1 or 15, and the optical film is placed such that the birefringent film side of the optical film faces the liquid crystal cell.

20 18. The liquid crystal display according to Claim 17, wherein the liquid crystal cell is in a VA mode.